Title: Money Math Carnival

Brief Overview:

Students will attend a math carnival that will utilize their money skills. While enjoying the sights, sounds, and excitement of the carnival, the students will play games and determine the value of sets of mixed currency. The students will also represent money amounts in different ways.

NCTM Content Standard/National Science Education Standard:

Standard 6: Number and Operations

Grade/Level:

Grade 3

Duration/Length:

3 days (60 minutes per day) plus time for assessment

Student Outcomes:

Students will:

- Determine the value of a given set of mixed currency
- Represent money amounts in different ways

Materials and Resources:

Lesson 1

- Manipulative money
- Bags of play money for each pair (totals of < $10)
- Transparency of Teacher Resource 1, *What's the Value?*
- Overhead money manipulatives
- Real coins (penny, nickel, dime, quarter, half dollar)
- 8 bean bags (or small, soft balls)
- 8 bowls of play money
- Teacher Resource 2, *Teacher Observation Checklist*

Lesson 2

- Manipulative money
- Overhead manipulative money
- Teacher Resource 6, *Teacher Observation Checklist 2*
- Student Resource 1, *Place Value Mat*
- **For each group of 2:**
  - 1 spinner
  - 2 dice

    - Copy of Student Resource 2, *Show me the Money*
- **For each group of 4:**
    - Cut-up Carnival Cards from Teacher Resource 3, *Carnival Cards*
    - Brown paper lunch bag with for Carnival Cards
    - Straw with string and magnet attached for fishing rod
    - Cut-out Gone Fishin' cards with magnetic tape on each card
    - Cut-out pond from Teacher Resource 5, *Pond Picture*

Lesson 3

- Manipulative money
- Overhead manipulative money
- Student Resource 3, *Money Wheel*
- Paperclips
- Teacher Resource 7, *Teacher Observation Checklist 3*
- Student Resource 1, *Place Value Mat*

Summative Assessment

- Student Resource 4, *Money Math Carnival Summative Assessment*
- Teacher Resource 8, *Money Math Carnival Summative Assessment Answer Key*

Development/Procedures:

Lesson 1

Pre-Assessment/Launch – Bags of Money

- Explain to students that they will be participating in a Money Math Carnival.
- Organize students into pairs.
- Distribute bags of money with bills and coins (totals of < $10) to each pair.
- Ask students to count the money in their bags.
- Observe students' abilities to determine the value of the sets of mixed currency.
- Ask two pairs of students to share their totals.

Teacher Facilitation – Money and Its Meaning

- Explain that prior to playing money games, students will review the value of coins.
- Display transparency for Teacher Resource 1, *What's the Value?* to review the value of a penny, nickel, dime, quarter, and half dollar.
- Start with the penny. Ask*: "What is the word name of the coin? What is the value of the coin?"* Display examples of real coins during the review.
- Complete the coin review for the nickel, dime, quarter, and half dollar by asking, "*What is the word name of the coin? What is the value of the coin?*"
- Continue to display examples of the coins during the review.
- Review the values of the one dollar, five dollar, ten dollar, and twenty dollar bills.

- Review with students that the word "and" should be said for the decimal point in a currency amount.
- Place two $1 bills, two nickels, three quarters, and one penny on the overhead.
- Tell the students that when counting money, count the bills first by starting with the largest value. Then count the coins starting with the largest value.
- Refer back to the money on the overhead and use the Think Aloud strategy. Record amounts during the Think Aloud. *Think Aloud: "I have two $1 bills. This equals $2. My coins consist of nickels, quarters, and one penny. I need to count the quarters first. Each quarter is worth twenty-five cents, so 3 quarters would equal seventy-five cents. Then I need to add the two nickels to the seventy-five cents. Each nickel is worth five cents. I can skip count by fives. Two nickels would equal ten cents. Ten cents plus seventy-five cents equals eighty-five cents. Now I need to add the penny to my eighty-five cents. Eighty-five cents plus one cent equals eighty-six cents. My total amount of change equals eighty-six cents. Two one dollar bills and eighty-six cents would equal two dollars and eighty-six cents."*
- Demonstrate how to correctly write the money amount with the dollar sign ($) and decimal point (.).
- Direct the students to work with you and their money for the next example.
- Place one $1 bill, two $5 dollar bills, three pennies, three dimes, one nickel, and one quarter on his or her desk.
- Place the same amount on the overhead.
- Using the model from the Think Aloud process, have the students work with the teacher to determine the value of the currency. ($11.63)
- Using a different amount of currency, invite a student to the overhead to determine the value.
- Place a set of mixed currency on the overhead and ask, *"What is the value of the currency?"* Have the students solve this problem alone or with a partner.

Student Application – Bean Bag Toss

- Organize students into groups of 3.
- Place bowls of mixed currency around the room in stations. Each group will go to one of the bowls.
- Have one student toss the bean bag into the bowl, one student count the currency, and one student check for accuracy using a calculator.
- If they miss the bowl, they get one more try.
- Rotate stations and roles when teacher gives the signal.

Embedded Assessment – Anecdotal Record

- While students are playing *Bean Bag Toss,* record the observations on Teacher Resource 2, *Teacher Observation Checklist.* Share with the

students that the teacher will assess understanding of determining money amounts. Discuss with the students observable criteria:

1. Correctly identify money and its value.
2. Use correct vocabulary when saying the value of the money:
   - dollars
   - cents
   - and

Reteaching/Extension

- Pull a small group of students not meeting criteria on the embedded assessment.
- Review the values of bills and coins.
- Place mixed currency amount in front of group.
- Using the steps from the *Think Aloud* process, discuss the amount of currency and how the students arrived at the total.
- Give small group several opportunities to count different mixed currency amounts.
- Have students visit the following website for extension:

http://www.aplusmath.com/cgi-bin/flashcards/money

Lesson 2

Pre-assessment/ Launch– Carnival Cards

- Remind students that they will be going to a Money Math Carnival.
- Ask: *" What could you purchase at a carnival?"*
- List student responses on the board.
- Divide students into groups of four.
- Distribute bags of Carnival Cards to each group (Teacher Resource 3).
- Direct each student to pull one card from the brown bag.
- Have students represent currency amount shown on the Carnival Cards.
- Circulate and make observations about the students' ability to accurately represent the currency amount.
- Allow the students to draw another Carnival Card and represent the amount on their desks.
- Ask one student from each group to share how they represented their currency amount.

Teacher Facilitation – Money Representations

- Say: "*Yesterday we reviewed coins, bills, and their values. We also determined the value of a mixed set of currency. Today we will represent currency amounts in different ways."*
- Write thirty-five cents on the board.
- Demonstrate how to represent thirty-five cents using the Think Aloud strategy.
- Show coins on the overhead during the "Think Aloud."
- Say: "*I know that the number thirty-five is three tens and five ones. Yesterday, I learned that a dime equals ten cents and a penny equals one*

cent. Three tens are thirty and that would equal three dimes. Five ones are five and that would equal five pennies. Three dimes is thirty cents and five pennies is five cents so thirty cents and five cents equals thirty-five cents."

- Ask: *"How many coins did I use to represent thirty-five cents?"* (8 coins)
- Say: "*That is too many coins to carry and I am afraid I will lose all those coins on the rides."*
- Ask: *"How can I represent thirty-five cents with the least amount of coins?"*
- Give the students time to Think-Pair-Share.
- Record student responses on the board. *Possible combinations are: 7 nickels*
  35 pennies
  6 nickels, 5 pennies
  1 quarter, 1 dime
  3 dimes, 1 nickel
  1 quarter, 1 nickel, 5 pennies
  1 quarter, 2 nickels
  1 quarter, 10 pennies
- Lead discussion with students to determine the set of currency that represents thirty-five cents with the fewest amount of coins (1 quarter, 1 dime).
- Write $2.47 on the board.
- Instruct students to represent $2.47 on their desks.
- Have students take a Gallery Walk around the room to observe classmates' representations.
- Ask: *"Did anyone see a classmate who represented $2.47 with the fewest amount of bills and coins?"*
- Listen to student responses.
- Write $3.74 on the board.
- Tell students to represent currency amount on their desks with the fewest amount of bills and coins.
- Share student responses.

Student Application – Gone Fishin'

- Have students reassemble into groups of four from the Pre-assessment/Launch activity.
- Distribute one fishing rod, one set of magnetic Gone Fishin' cards, (Teacher Resource 4), and *Pond Picture,* (Teacher Resource 5), to each group.
- Place fish cards in the pond.
- Instruct students that they will each take two turns fishing in the pond. Using the fishing rod, catch a Gone Fishin' card from the pond. The student will read the amount on the card and everyone in the group will represent the currency amount using the fewest bills and coins.

Embedded Assessment – Anecdotal Record

- While students are playing *Gone Fishin',* observe and record on Teacher Resource 6, *Teacher Observation Checklist 2.* Share with students that the teacher will assess representing currency amounts with the fewest amounts of bills and coins. Discuss with students observable criteria:
    1. Use the correct vocabulary when saying the money amount:
        - dollars
        - cents
        - bills
    2. Accurately represent currency amount with fewest amount of bills and coins.

Reteaching/Extension –Show Me the Money

- Pull a small group of students not meeting criteria on the embedded assessment.
- Use Teacher Resource 3, *Carnival Cards,* to practice representing currency amounts with the fewest amount of bills and coins.
- Pull a card from the pile.
- Say: *"Show the currency amount on the card."*
- Help students who are having trouble representing amounts by using Student Resource 1, *Place Value Mat.* Assist the students in placing the money manipulatives under the appropriate columns on the mat to show the amount of currency on the card.
- Place students who are ready to extend their learning in groups of two.
- Distribute Student Resource 2, *Show Me the Money.*
- Instruct Player 1 to spin the spinner and that will be the dollar amount. Player 1 will also roll the dice and that will be the coin amount.
- Instruct Player 2 to represent the total amount using the fewest number of bills and coins.
- Tell students to switch roles after each turn.
- Continue with Extension until teacher is finished working with the small group.

Lesson 3

Pre-Assessment/Launch-Family Day

- Remind students that they will be going to a Money Math Carnival. Distribute bowls of math manipulative coins and bills to the students.
- Say: *"I had so much fun at the carnival yesterday that I decided to invite my family to come to the carnival today. I bought 4 tickets to the carnival and the total was $45.75. Show me this amount using the fewest bills and coins."*
- Circulate and make observations about the students' ability to represent the amount on their desks.
- Have the students share their responses with the class.

Teacher Facilitation – Money Representations

- Say: "*Today we are going to represent money amounts up to $100. We will be using larger units of money at the carnival today."*
- Display one $20 bill, two $10 bills, one $1 bill, 2 quarters, and 3 pennies on the overhead.
- Remind the students that when counting money, count the bills first by starting with the largest value. Then count the coins starting with the largest value.
- Refer back to the money on the overhead and use the Think Aloud strategy. Record amounts during the Think Aloud. *Think Aloud: I have one $20 bill. That equals twenty dollars. I also have two $10 bills which equals twenty dollars. Twenty dollars plus twenty dollars equals forty dollars. Next, I have one $1 bill, so forty dollars plus one dollar equals forty-one dollars. Now I need to count the coins. I have two quarters which equals fifty cents. I also have three pennies which equals three cents. Fifty cents plus three cents equals fifty-three cents. If I combine the bills and coins, my total would be $41.53.*
- Put two $20 bills, three $5 bills, 1 quarter, 2 dimes, and 1 nickel on the overhead.
- Using the model from the Think Aloud process, have the students work with the teacher to determine the value of the currency. ($55.50)
- Say: "*Now we are going to use the fewest bills and coins to represent a given money amount."*
- Write $64.20 on the board.
- Demonstrate how to represent $64.20 using the Think Aloud strategy.
- Say: *"I need to start with the bills. I know that three $20 bills would equal sixty dollars. Four $1 bills would equal four dollars. The total bills are $64. Now I need to represent twenty cents. I know that a dime equals ten cents so two dimes would equal twenty cents. If I combine the bills and coins, my total would be $64.20.*
- Write $72.61 on the board.
- Instruct the students to represent $72.61 on their desks.
- Have students take a Gallery Walk around the room to observe classmates' representations.
- Ask: "*Did anyone see a classmate who represented $72.61 with the fewest amount of bills and coins?"*
- Share student responses.

Student Application – Money Wheel

- Say: "*Today's carnival game is a money wheel. You will spin the money wheel to determine your prize money."*
- Place students in groups of two.
- Distribute a paperclip and one copy of Student Resource 3, *Money Wheel.*
- Instruct player 1 to spin the wheel and record the dollar amount. Player 1 will spin again and record the cents amount. Player 2 will give Player 1

the prize money using the fewest bills and coins. Players will switch roles.

Embedded Assessment – Anecdotal Record

- While students are playing *Money Wheel,* observe and record on Teacher Resource 7, *Teacher Observation Checklist 3.* Share with students that the teacher will assess representing currency amounts with the fewest amounts of bills and coins. Discuss with students observable criteria:
  3. Use the correct vocabulary when saying the money amount:
     - dollars
     - cents
     - bills
  4. Accurately represent currency amount with fewest amount of bills and coins.

Reteaching/Extension –Place Value Mat

- Pull a small group of students not meeting criteria on the embedded assessment.
- Help students who are having trouble representing amounts to $100 by using Student Resource 1, *Place Value Mat.* Assist the students in placing the money manipulatives under the appropriate columns on the mat to show the amount of currency.
- Also, provide practice for determining the value of money amounts up to $100.
- Have students visit the following website for extension: *http://www.aplusmath.com/Worksheets/OnlineMoney.html*

Summative Assessment:

Have the students complete Student Resource 4, *Money Math Carnival Summative Assessment* in order to assess their ability to determine the value of a given set of mixed currency and represent money amounts in different ways. Answers can be found on Teacher Resource 8.

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Student Resource 1

PLACE VALUE MAT

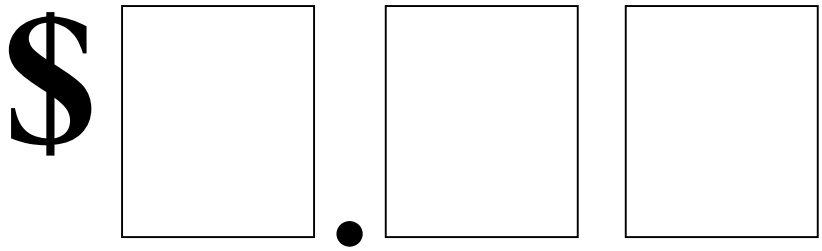
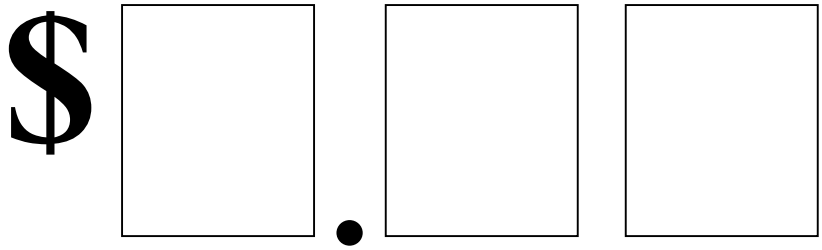
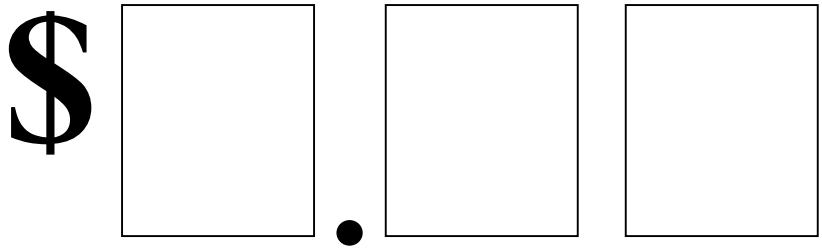
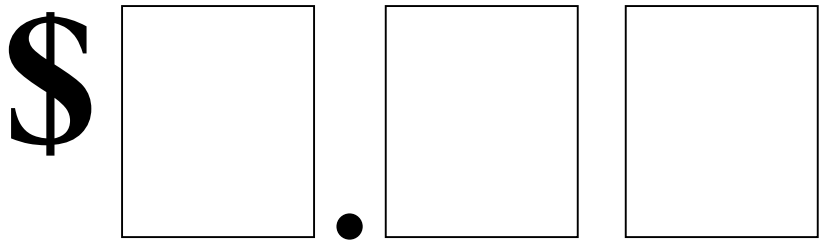
DOLLARS	•	CENTS

●				

Student Resource 2

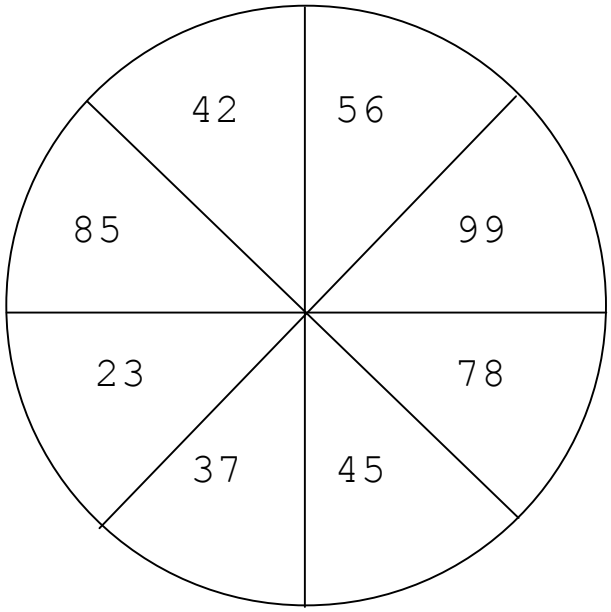
Show Me the Money!!!

Directions: Player 1 spins the spinner to represent the dollars. Then Player 1 rolls the dice to record the cents. Player 2 represents the value using the least amount of bills and coins. Player 1 checks the amount for accuracy. Players switch roles.

Money Wheel

Directions: Use a paperclip to make a spinner. Player 1 spins twice. The first spin represents the dollar amount and the second spin represents the coin amount. Player 2 has to give Player 1 the "prize money" using the fewest amount of bills and coins. Players will switch roles.



$ ☐☐.☐☐

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Money Math Carnival
Summative Assessment

1.

What is the value of the mixed set of currency?

a. $2.45
b. $2.36
c. $1.15
d. $2.51

2.

What is the value of the mixed set of currency?

a. $4.83
b. $8.73
c. $8.93
d. $8.83

3. Julie has $3.68. Which set of currency represents Julie's amount?

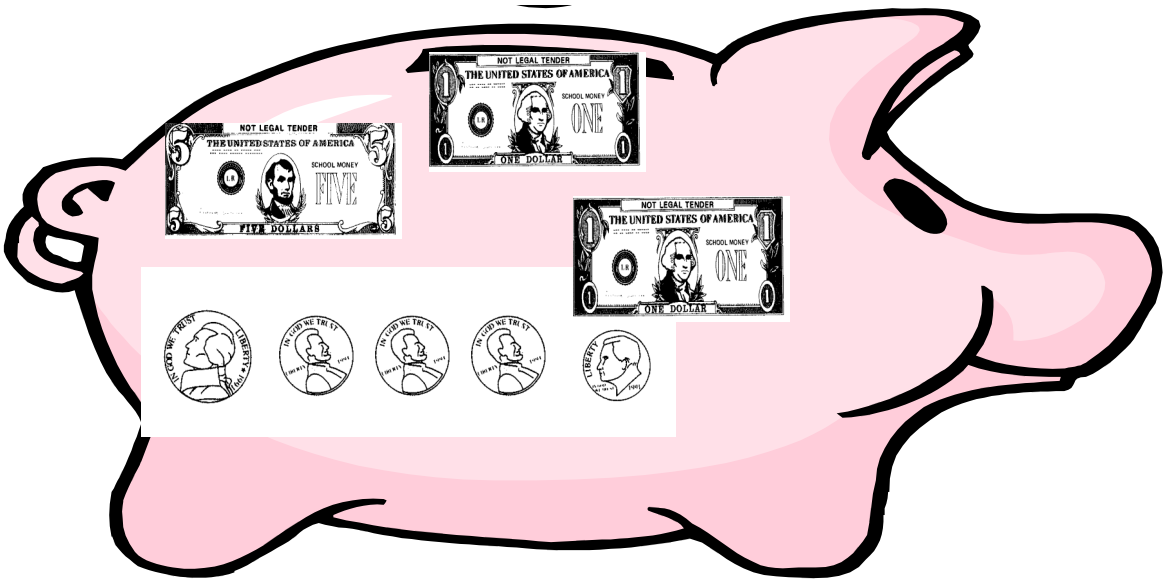
a. Three $1 bills, 3 quarters, 1 nickel
b. Three $1 bills, 2 quarters, 1 dime, 2 nickels
c. Three $1 bills, 2 quarters, 1 dime, 1 nickel, 3 pennies
d. Five $1 bills, 10 dimes

4. Which set of currency shows $32.36 with the fewest number of bills and coins?

a. Six $5 bills, two $1 bills, 2 dimes, 3 nickels, 1 penny
b. One $20 bill, one $10 bill, two $1 bills, 1 quarter, 1 dime, 1 penny
c. One $20 bill, two $5 bills, one $1 bill, 4 quarters, 3 dimes, 6 pennies
d. One $10 bill, four $5 bills, two $1 bills, 1 quarter, 2 nickels, 1 penny

Student Resource 4

Brief Constructed Response



Part A:
Sophia has saved her allowance in her piggy bank. What is the total amount of currency in her piggy bank?

_____

Part B:
Explain how you determined your answer.
Use what you know about currency and its value in your explanation.
Use words, numbers, and/or pictures in your explanation.

_____

_____

_____

_____

Teacher Resource 1

What's the Value?

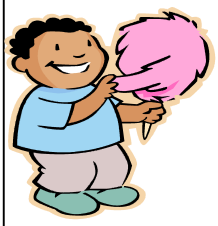
Coin	Word Name	Value
		
		
		
		
		

Teacher Resource 2

Teacher Observation Checklist

Student Name	The student accurately determines the money amount in the bowl.	The student accurately says the money amount, including the vocabulary: • dollars • cents • and

Carnival Cards



Cotton Candy

$0.27

Popcorn

$0.93

Tickets

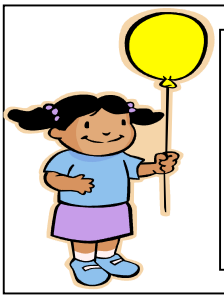
$1.75

Soda

$0.82

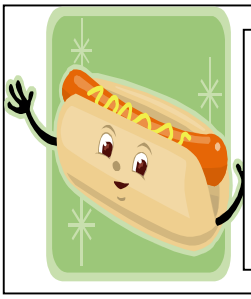
Ice Cream

$2.30



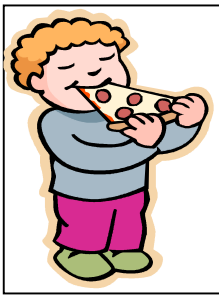
Balloons

$0.63



Hot Dog

$2.15

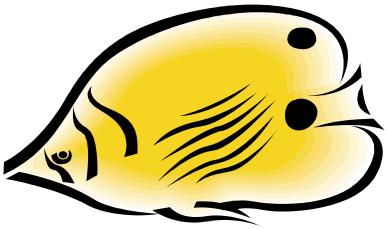


Pizza

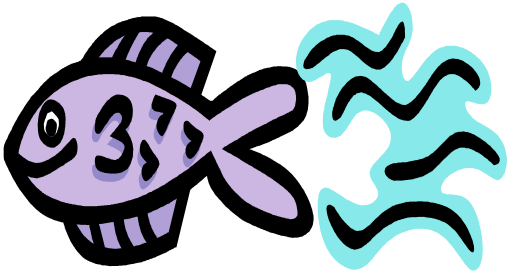
$3.11

Gone Fishin'

$ 4.26

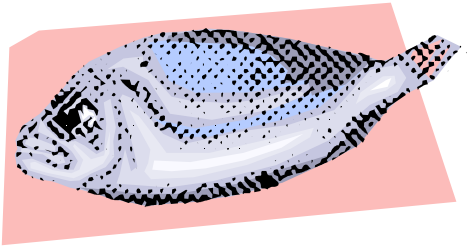


$ 1.96



$ 10.58

$ 0.47



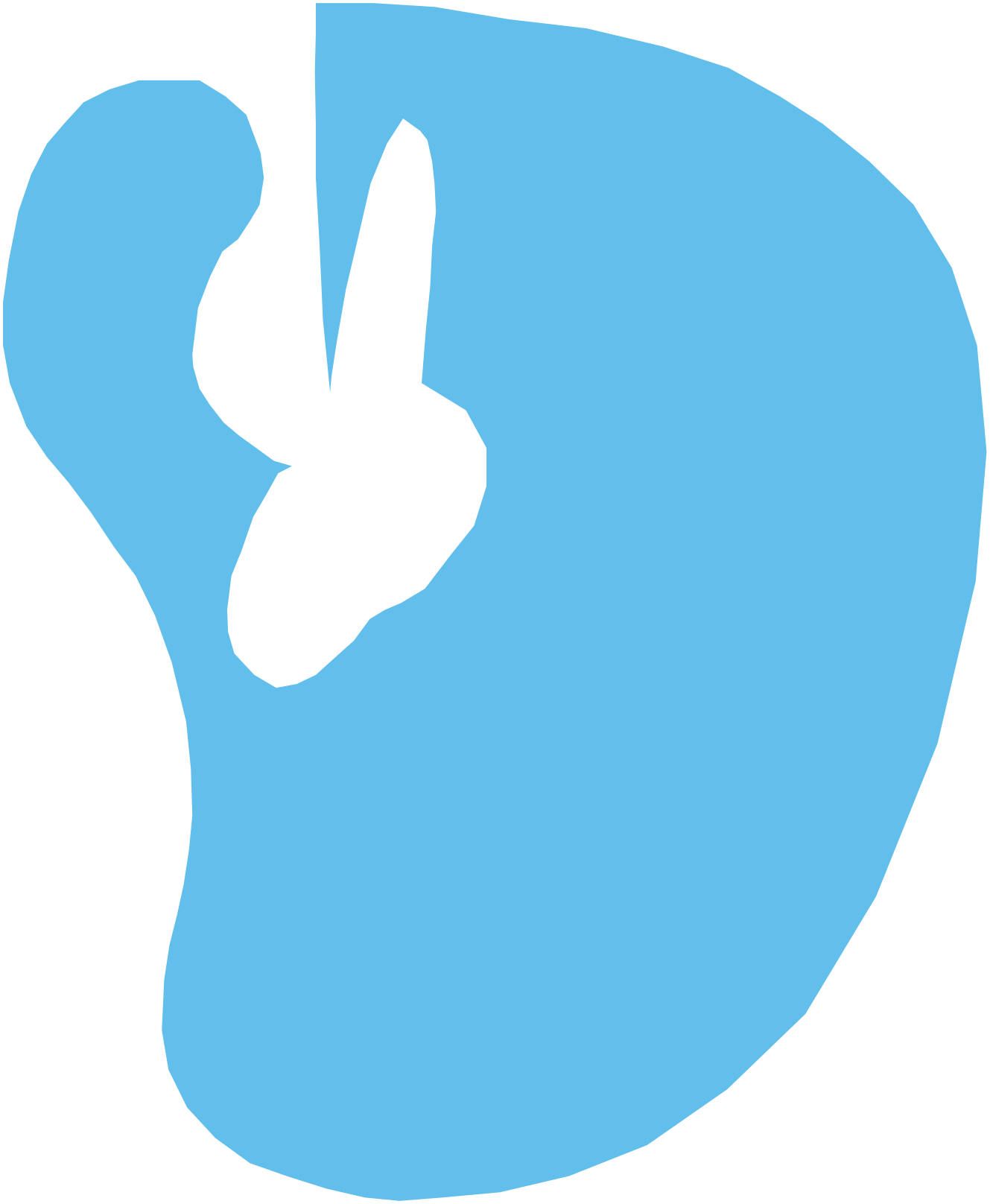
$ 8.22

$ 0.44

$ 3.99

$ 5.63

Pond Picture



Teacher Resource 6

Teacher Observation Checklist 2

Student Name	The student accurately says the money amount, including the vocabulary: • dollars • cents • and	The student accurately represents currency with the fewest amount of bills and coins.

Teacher Resource 7

Teacher Observation Checklist 3

Student Name	The student accurately says the money amount, including the vocabulary: • dollars • cents • and	The student accurately represents currency with the fewest amount of bills and coins.

Money Math Carnival
Summative Assessment
Answer Key

1.

What is the value of the mixed set of currency?

c. $2.45
b. $2.36
c. $1.15
d. $2.51

2.

What is the value of the mixed set of currency?

c. $4.83
b. $8.73
c. $8.93
d. $8.83

4. Julie has $3.68. Which set of currency represents Julie's amount?

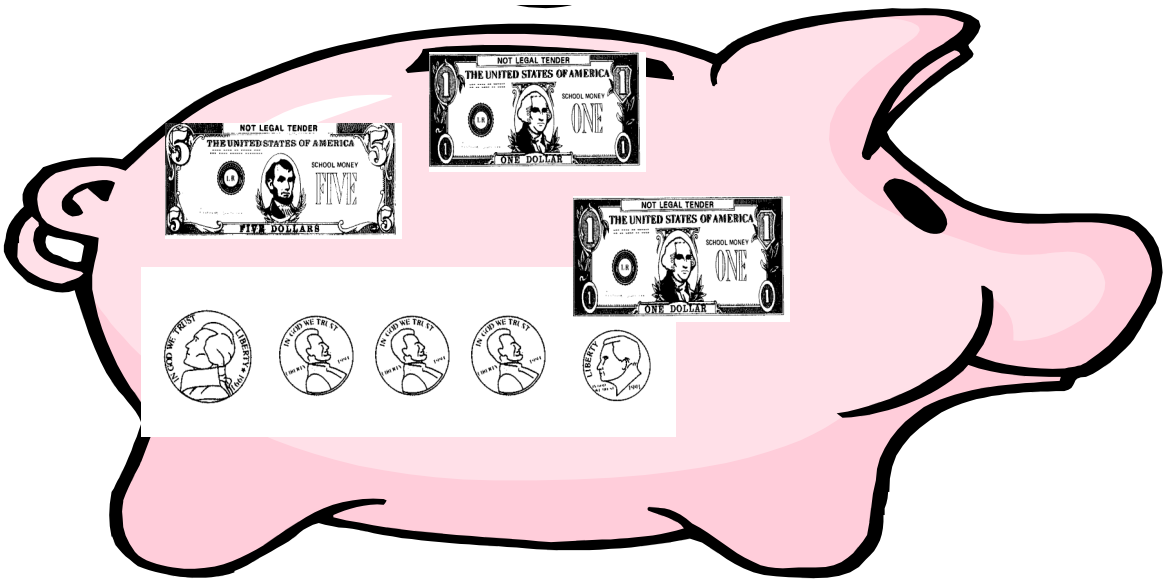
a. Three $1 bills, 3 quarters, 1 nickel
b. Three $1 bills, 2 quarters, 1 dime, 2 nickels
c. Three $1 bills, 2 quarters, 1 dime, 1 nickel, 3 pennies
d. Five $1 bills, 10 dimes

4. Which set of currency shows $32.36 with the fewest number of bills and coins?

a. Six $5 bills, two $1 bills, 2 dimes, 3 nickels, 1 penny
b. One $20 bill, one $10 bill, two $1 bills, 1 quarter, 1 dime, 1 penny
c. One $20 bill, two $5 bills, one $1 bill, 4 quarters, 3 dimes, 6 pennies
d. One $10 bill, four $5 bills, two $1 bills, 1 quarter, 2 nickels, 1 penny

Teacher Resource 8

Brief Constructed Response



Part A:
Sophia has saved her allowance in her piggy bank. What is the total amount of currency in her piggy bank?

$7.18

Part B:
Explain how you determined your answer.
Use what you know about currency and its value in your explanation.
Use words, numbers, and/or pictures in your explanation.

Answers will vary.

_____

_____

_____

_____